

REMARKS

Claims 1-9 are pending and stand rejected.

Claims 1-6 stand rejected, and claims 6-9 are withdrawn.

Claim 2 has been canceled, and claim 1 has been amended to incorporate the limitations of Claim 2.

Improper Final Rejection

Applicant contends that the present Final Rejection is premature. The present invention includes the old grounds for the 35 U.S.C. §103 rejection, plus a new 35 U.S.C. §§ 102(b)/103(a) rejection. The Examiner contends that this new grounds of rejection was Necessitated by Applicant's amendment. The amendment in fact was very minor "A composition comprising a polyamide/polyolefin blend having a polyamide matrix, containing carbon nanotubes", and adds no ground for the Examiner's search, that was not present in the original claim. The "new" reference being cited by the Examiner is one of the two references included by Applicant in the Information Disclosure Statement (IDS) submitted with the original patent application (and not a later IDS requiring a fee). Applicant believes the Examiner's new ground of rejection "is neither necessitated by applicant's amendment of the claims, nor based on information submitted in an information disclosure filed during the period set forth in 37 CFR 1.97(c) with the fee", as stated in MPEP 706.07(a), and therefore the finality of the rejection is improper. Applicant requests the Examiner to remove the finality of the present rejection, as the full issue of rejection had not been developed between the Examiner and Applicant, as required by MPEP 706.07, footnote.

35 U.S.C. §§102(b)/ 103(a)

Claims 1-6 stand rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 6,090,479. The '479 reference fails to teach all of Applicants claim elements and limitations, and therefore fails to present a *prima facie* case of anticipation or obviousness. Specifically, Applicant claims a composition of a polyamide/polyolefin blend containing carbon nanotubes, while the '479 patent teaches a

multilayer plastic in which the inner layer has graphite fibrils and may be a polyamide, polyolefin, polyester or fluoropolymer. The polyamide may be impact modified with an ethylene-propylene copolymer (Col. 3, line 9).

As Applicant explains on page 22, lines 12-29 of the specification, carbon nanotubes are a novel allotropic form of carbon, and are considered as a unique species of carbon systems lying mid-way between conventional carbon fibres and the new forms of carbon such as fullerenes. Thus carbon nanotubes and graphite fibrils are not the same, and do not possess equivalent properties – making carbon nanotubes of the present claims neither the same as, nor obvious over, graphite fibrils.

Further, while having a polyamide that is optionally impact modified by a polyolefin may sound similar to a blend of a polyamide and a polyolefin, one of skill in the art would recognize a blend as being an alloy of the two polymers, while impact modifiers are separate particles. In listing separate matrix plastics of polyamide, polyolefin, polyester, or fluoropolymer, and never teaching, suggesting or exemplifying a blend of any of these polymers, the ‘459 reference teaches away from an alloy blend of any two of these plastics. One of skill in the art would not be motivated to practice the polyamide/polyolefin blend from the ‘459 of single polymer plastic inner layers. Additionally one in the art would not be motivated from the teaching on graphite fibres in the ‘459 reference to practice the nanotubes of Applicant’s claims.

Nor would one arrive at Applicant’s claims by routine experimentation from the ‘459 reference, since neither plastic blends, nor carbon nanotubes were even considered in the ‘459 reference, let alone recognized as result-effective variables that could be optimized.

35 U.S.C. §103(a)

Claims 1-6 stand rejected under 35 U.S.C. 102(b) as obvious over US 6,331,265 – per reasons of record. As, previously stated in Applicant’s last response, the ‘265 reference fails to teach all of Applicants claim limitations, and therefore fails to present a *prima facie* case of obviousness. Specifically, Applicant claims a composition of a polyamide/polyolefin blend containing carbon nanotubes, while the ‘265 patent (to Applicant Company) teaches a method using only a single polymer matrix.

Response to the Examiner’s Response

1. The Examiner erred in rejecting the present claims as obvious to one having ordinary skill in the art to use a blend of two polymers in place of the single polyamide of the Duprire reference, since it is prima facie obvious to combine two materials each of which is taught to be useful individually. The ‘265 reference describes a method of orienting carbon nanotubes in reinforced plastics. The plastic is not limited, with polyolefins, polyesters, polyamides, PVCs and polystyrenes being listed. There is no teaching or suggestion of any advantage to using a plastic blend.

The Examiner contends that if Polymer A and Polymer B are both known for a given purpose individually, then using them as a blend would be obvious. This contention leads to the conclusion that the blend would then perform in a manner similar to, or as an average of each individual polymer. When the blend result is synergistic and better than either Polymer alone, an unexpected and unobvious result has occurred.

Surprisingly, Applicant found that in a polyamide/polyolefin blend, having a polyamide matrix, the carbon nanotubes concentrate in the polyamide. Thus the polyamide/polyolefin blend has the same antistatic properties as a polyamide blend containing nanotubes; but by containing much fewer nanotubes, it is less expensive. The result is that a lower level of carbon nanotubes is required in the blend, than in either a pure polyamide, or a pure polyolefin, for the same antistatic properties. An additional advantage of the carbon nanotubes in the polyamide/polyolefin blend is that the barrier properties to alcohol-containing fuels are increased.

2. The Examiner erred in rejecting the present claims as obvious to use “a blend of two matrix polymers, i.e. polyamide and polyolefin, for their expected additive effect.”

Applicant notes and agrees with the Examiner’s recognition of the difference between “matrix” polymers, and an additive such as an impact modifier as cited in the rejection over the ‘459 reference above.

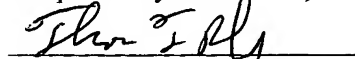
The Examiner contends that obviousness is linked to an expected additive effect. Indeed, one of skill in the art would expect an ADDITIVE effect – that the amount of total carbon nanotubes required in the polyamide/polyolefin blend would be the amount needed in the polyamide PLUS the amount needed in the polyolefin. Surprisingly, such expected ADDITIVE effect does not occur. Rather, Applicant found that there was actually a SUBTRACTIVE effect

in the claimed composition – a much lower level of carbon nanotubes is required in the blend, than would be required in either of the pure material for the same antistatic effect. Thus the claimed blend composition would not be obvious, as the loading requirements of the nanotubes, and properties of the material are unexpected.

The advantage found in the present invention can be seen in Figure 1 of the application. At the same loading level of carbon nanotubes, the polyamide/polyolefin blend has a significantly lower resistivity (better conductivity) than a pure polyamide

Since the cited reference fails to present a *prima facie* case of obviousness over the claims as amended, Applicant believes that the reasons for rejection have been overcome, and the claims herein should be allowable to the Applicant. Accordingly, reconsideration and allowance are requested.

Respectfully submitted,



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